REMARKS

Claims 1-8, 10-15, 17, 19 and 20 are pending in this application.

By this paper, independent claims 1, 10, 17, 19, and 20 are amended.

In view of these amendments and the following discussion, the applicants believe that all of the claims no present in the application are allowable. If, however, the Examiner believes that there are any unresolved issues requiring adverse action in any of the claims no pending in the application, it is requested that the Examiner telephone Jeffery J. Brosemer, Ph.D., ESQ. at 732-335-5773 so that arrangements may be made for resolving such issues as expeditiously as possible.

Claim Rejections – 35 U.S.C § 103(a)

Claims 1-8, 10-15, 17, 19 and 20 are rejected under the provisions of 35 U.S.C § 103(a) as being unpatentable over Yiannopoulos (IEEE Photonics Technology Letters, Vol. 15, No. 6, June 2003) in view of Cho et al (IEEE Photonics Technology Letters, Vol. 15, No. 1, January 2003), further in view of Gnauck (US 2002/0021861).

In response, the applicants have further amended independent claims 1, 10, 17, 19, 20 such that they more clearly, precisely, and narrowly define the invention of the instant application. In particular, each of the independent claims now recites very specific characteristics of the **deep saturation mode** in which the semiconductor optical amplifier(s) of the present invention operate. More particularly, each of these independent claims recites that the deep saturation regime of the semiconductor optical amplifier(s) is defined by: **ΔP_{OUT}(dB)/ ΔP_{IN}(dB) is less than 0.25, where P_{OUT} is the power of the optical signal output from the amplifiers, and P_{IN} is the power of the optical signal input into the amplifiers.**

Consequently the applicants believe that they have narrowed the issues under consideration in this application to a single one namely, does the prior art anticipate, teach, suggest or otherwise make obvious their optical communication method and apparatus in which the SOAs operate in this deep saturation regime. The applicants believe not.

In the most recent Office Action, the Examiner states that Gnauck discloses in Figure 4, a SOA regulated to a saturation output power such that a SOA ΔP_{OUT}(dB)/ ΔP_{IN}(dB) is less than 0.25.

The applicants submit that the Examiner is mistaken in this reliance on Gnauck.

While this Figure 4 does show an output power vs input power curve for an optical amplifier and arguably, a portion of that curve does appear flattened, **Gnauck explicitly rejects operation in the saturated region.** With reference to that Figure 4, there it shows linear region A1, in which the SOAs preferably operate so as to "… minimize crosstalk …" (Gnauck, paragraph 45). Further, Gnauck explicitly advocates the operation of the SOA in the linear regime A1, rather than in a saturated regime because it has been proven by Gnauck's work that SOA's are less susceptible to

power fluctuations and transients caused by added or dropped channels when so operated. In this very direct manner, Gnauck rejects saturated operation and therefore actually **teaches away from the present invention.**

The applicants submit that there is absolutely no teaching or suggestion whatsoever of SOA operation in a **deep saturated mode – and in particular where ΔP_{OUT}(dB)/ ΔP_{IN}(dB) is less than 0.25 as only now taught and claimed by the instant applicants.**

Consequently, the applicants submit that a communications method employing the operation of a semiconductor optical amplifier in "deep saturation" as that term is used in the independent claims of the instant application is not obvious in view of the cited art.

Conclusion:

The applicants submit that all of the claims now present in the application fully comply with the provisions of 35 U.S.C. § 103 and are therefore allowable. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

Respectfully submitted,
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CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office on August 10, 2010.

s/Jeffery J. Brosemer/
Signature

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